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NEW SPIDERS FROM UTAH.

BY RALPH V. CHAMBERLIN,
Cambridge, Mass.

DRASSIDÆ.

Zelotes fratris, sp. nov.

Male.—A species suggesting *Z. ater* in general appearance and structure. Cephalothorax, abdomen and legs black, the tarsi of the latter paler. Posterior row of eyes straight, the eyes nearly equal and equidistant, thus clearly contrasting with *ater*, in which the median eyes are larger and much more approximate to each other than to the laterals. Anterior row of eyes procurved as usual; the medians much smaller than the laterals, being about half the diameter of the latter, more than their diameter from each other, but very close to the laterals. Area of median eyes as wide in front as, or scarcely wider than, behind. Anterior tibiæ wholly unspined, not armed at distal end as in *ater*. Anterior metatarsi with a pair of spines at base. Palpus with apophysis suggesting that of *ater*, the bulb, however, differing decidedly in details and much more similar to that of *tuobus*. See fig. 18, 1 and 2.

Length 6.3 mm. Length of cephalothorax 2.8 mm. Length of tib.+pat. I, 2.6 mm.; of tib.+pat. IV 2.8 mm.

Locality.—Utah: Logan Canyon. Collected by my brother, Seth C. Chamberlin.

Aside from difference in the palpal organs which are represented in the figures, this form differs from the male paratype of *tuobus* in having the tib.+pat. IV of the same length as the cephalothorax instead of much longer. In the male paratype of *tuobus* the cephalothorax is 3 mm. long, while the tib.+pat. IV measured 3.7 mm.

Zelotes lampra, sp. nov.

Female.—Cephalothorax shining black. Legs black, with all tarsi and the metatarsi of the first three pairs in the type paler. Abdomen black both above and below. Anterior row of eyes procurved in such degree that the tangent to the lower edge of the medians passes through or very near the centres of the laterals. Median eyes much smaller than the laterals, about their diameter apart, much closer to the laterals. Posterior row of eyes straight; median eyes larger than the laterals, scarcely their radius apart, an equal distance from the laterals. Quadrangle of median eyes wider behind than in front, a little longer than wide. Tibia I+II armed beneath near middle (or possibly a pair of spines). Metatarsi I and II each with a pair of subbasal spines beneath. Distinguished readily by the form of the epigynum, which is represented in fig. 19, 3.

Length 5 mm. Length of cephalothorax 2 mm. Length of tib.+pat. I 2 mm.; of tib.+pat. IV 2.36 mm.

Locality.—Utah: Salt Lake Co., Mill Creek.

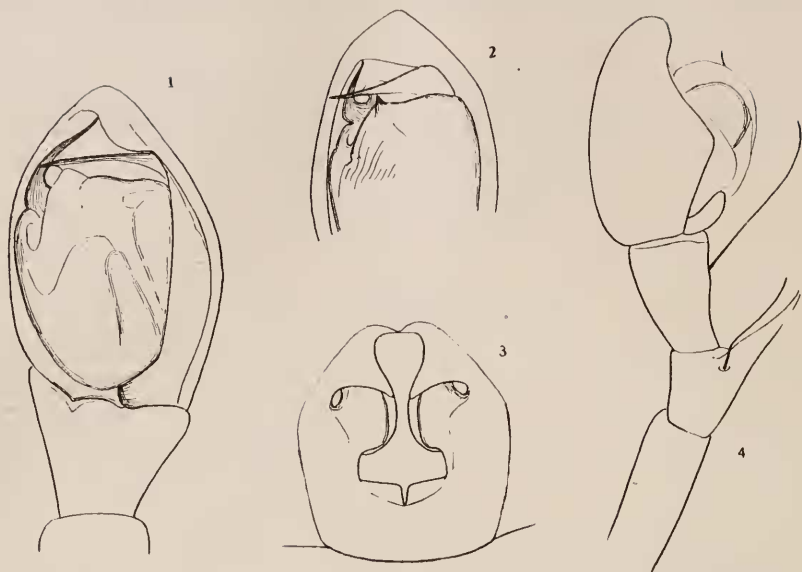


Fig. 19. 1. *Zelotes fratris*, sp. n.; ventral view of male palpus. $\times 44$. 2. *Zelotes tuobus* Chamberlin, distal part of tarsus of male palpus, ventral view. $\times 44$. 3. *Zelotes lampra*, sp. n., epigynum. $\times 73$. 4. *Linyphia hespera*, sp. n., male palpus, dorsal view. $\times 44$.

LINYPHIIDÆ.

Linyphia hespera, sp. nov.

Coloration essentially identical with that of *L. phrygiana*, with which it has heretofore been confused. Cephalothorax light yellow, narrowly margined with black and with a black median longitudinal line along dorsum which widens clavately up the head to the eyes, this clavate portion geminate by a median pale line and each half again divided at anterior end by a broad process of yellow. Abdomen marked by the typical dark herringbone longitudinal dorsal stripe, this often in part obliterated anteriorly. Legs yellow, typically annulate as in *phrygiana*, with femora commonly minutely maculate. The markings of body often reddish instead of black. The species is most readily distinguished by the characters of the male palpus. The patellar apophysis is similar in position and general form to that of *phrygiana* but differs uniformly in narrowing continuously distad to the tip, where it is acute instead of being clavate and rounded at the end as it is in *phrygiana*. The conspicuous principal seta of the tibia as viewed from above is inserted towards the distal end instead of near the middle; and at the base of the patella apophysis above is a seta, typically as long as to longer than the apophysis, which is geniculate above its base. See Fig. 19, 4. The epigynum is very similar to that of *phrygiana*. The median lobe seems to have the distal portion a little broader and the narrow isthmus a little shorter.

Length of male type 5 mm. Length of cephalothorax 2.37 mm.; width 2.1 mm. Length of tib.+pat. I 4.1 mm.; of tib.+pat. IV 2.7 mm.

Locality.—Utah: Bear Lake, Logan Canyon. Numerous specimens. Females from Chalk Creek, Uintah Mts., seem also to be of this species.

Lethyphantes lamprus, sp. nov.

Female.—Carapace fulvous, the eyes edged with black and a marginal stripe on each side also black. Sternum dusky, almost black. Legs fulvous, strongly annulate with black, the femur with an annulus at each end and one at middle, the patella with one at distal end, the tibia and tarsus each with one just proximad of middle and one at distal end, and the tarsus darkened at middle. Abdomen in general black, a network of yellowish or whitish lines above separating off a longitudinal row of black spots on each side with a pointed longitudinal mark between them at base. Venter with a light spot in front of spinnerets. Head protruding a little forward above clypeus, the upper part of which is depressed, from where the latter slants forward. Anterior row of eyes straight; the median eyes decidedly smaller than the laterals and much nearer together, being rather less than their radius apart but nearly their diameter from the laterals. Posterior row of eyes straight; median eyes larger than the laterals from which separated by scarcely their radius, nearer to each other. Area of median eyes much wider behind than in front. Epigynum as shown in Fig. 20, 1.

Length about 3 mm. Length of cephalothorax 1.3 mm. Length of tib.+pat. IV 1.63 mm., the length of tib.+pat. I the same or very nearly so.

Locality.—Utah: Logan Canyon.

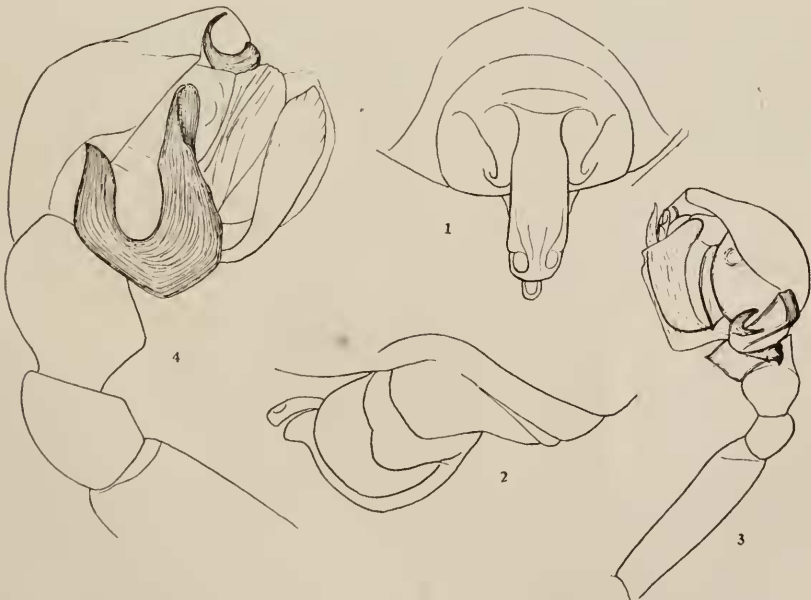


Fig. 20. 1. *Lethyphantes lamprus*, sp. n., epigynum, ventral view. x74. 2. The same, side view. x74. 3. *Bathyphantes phylax*, sp. n., left male palpus, ectal view. x44. 4. *Microneta uta* sp. n., right male palpus, ectal view. x175.

Bathyphantes phylax, sp. nov.

Male.—Cephalothorax dusky over a yellowish ground. Legs yellowish, slightly darkened, less so distad of the patellæ. Cephalorax longer than wide in about the ratio 9:7. Head highest caudad of eyes, convex; sides rather steep and clypeus subvertical with head a little bulging forward above it. Lateral

eyes on rather pronounced tubercles suggesting those of some species of *Microneta*. Posterior row of eyes straight; median eyes a little less than their diameter apart, and a little more than their diameter from the laterals. Anterior row of eyes straight or scarcely recurved; median eyes less than their radius apart, their diameter from the laterals. Palpal organ with a broad membranous blade curving forward from base beneath the style, its edge denticulate above across its distal end. Hook bent into a semicircle with a subquadrate plate from its ectal side below and a spur at the caudodorsal angle of the latter as shown in Fig. 20, 3.

Length of cephalothorax 1.46 mm.; width 1.14 mm. Length of tib.+pat. I 1.74 mm.; of tib.+pat. IV 1.85 mm. Metatarsus I of nearly same length as tibia I.

Locality.—Utah: Bear Lake. One male.

***Microneta uta*, sp. nov.**

Male.—Cephalothorax, abdomen and palpi black or nearly so. Legs fulvous, in part slightly dusky. Cephalothorax conspicuously narrowed in front of middle, obviously longer than broad (cir. 7:5). Posterior row of eyes straight; the median eyes slightly larger, scarcely their diameter apart. Anterior eyes in a straight line; the eyes nearly equidistant with the medians smaller than the laterals. Head slanting obliquely forward from posterior row of eyes to anterior row, the anterior median eyes carried forward above upper part of clypeus, the clypeus slanting forward, its profile straight. Tibia of palpus widening distad and a little elevated above but without any distinct process. Tarsal hook abruptly bent back, the distal or recurving portion long. See Fig. 20, 4.

Length 1.75 mm. Length of cephalothorax .7 mm.; width .5 mm. Length of tib.+pat. I .76 mm.; of tib.+pat. IV, .86 mm.; of met. IV. 6. mm.

Locality.—Utah: Logan Canyon.

***Diplocephalus cryptodon*, sp. nov.**

Female.—Cephalothorax and legs yellow of a dilute orange tinge. Abdomen dark gray. Posterior row of eyes conspicuously procurved; median eyes less than their diameter and more than their radius part, the same distance from the laterals or nearly so. Anterior row of eyes straight or nearly so; medians considerably smaller than the laterals, about their radius apart and scarcely farther from the laterals. Clypeus in height equalling the length of the median ocular area or a little lower. Median ocular area longer than wide. Upper margin of furrow of chelicera armed with four teeth of which the three nearest the claw are long and subequal, the fourth tooth smaller; lower margin of furrow with four similarly well separated but similarly much smaller teeth. Epigynum as shown in Fig. 21, 3.

Male.—The postocular swelling is slight, scarcely or not at all rising above level of eyes, the hair short and sparse, forming a median longitudinal line; lateral pits conspicuous. Posterior row of eyes procurved; medians half their longer diameter apart, nearly twice as far from the laterals. Anterior row of eyes straight; the medians much smaller than the laterals, less than their radius



Fig. 21. 1. *Diplocephalus cryptodon*, sp. n., right male palpus, ectal view. x73. 2. Dorsal view of tibia and proximal portion of tarsus of same palpus. x44. 3. Epigynum. x73. 4. *Spirembolus vallicolens*, sp. n., male palpus, ventral view. x86. 5. Male palpus, distal view. x86. 6. Epigynum. x103.

apart, their diameter from the laterals. In the palpus the tibia at its distal end is expanded into a thin cup or calyx over the base of the tarsus as in *dentipalpis* (Emerton). On the inner surface of the dorsal part of this calyx, or hood, is borne a small tooth but this is well removed from the edge and is smaller and less chitinous than that of *dentipalpis*. In contrast with the conspicuously long and exposed embolus of *dentipalpis*, that of the present species is comparatively short though presenting a similar double curve, as shown in Fig. 21, 1 and 2.

Length of male 2.5 mm. Length of cephalothorax 1.2 mm.; width 1 mm.
Locality.—Utah.

SPIREMBOLUS, gen. nov.

Cephalothorax normally narrowed anteriorly, the front obtuse. Clypeus higher than the length of median eye area, strongly convex in dorsal views. Anterior row of eyes from straight to procurved; medians much smaller than the laterals and nearer to each other than to the latter. Posterior row of eyes from straight or slightly recurved, as in the genotype, to slightly procurved; medians farther from each other than from the laterals, or the eyes nearly equidistant (male of *vallicolens*). Area of median eyes wider than long. Anterior tarsi shorter than the metatarsi. In the male palpus the tibia bears a slender apophysis which extends over the tarsus which ends in a slender pointed tip which is bent abruptly. Cymbium of tarsus conspicuously elevated in middle above; bulb characterized by having the embolus coiled in a spiral which widens from the base of the bulb distad, the coils being nearly at right angles to the long axis of the joint, and thus quite from the disposition in *Spiropalpus*.

Genotype.—*Cornicularia monticolens* Chamberlin.

Includes also the species described below. These forms are at once distinguishable from others by the peculiar male palpi which are notably fixed in structure in comparison with other characters such as those of the cephalothorax.

***Spirembolus vallicolens*, sp. nov.**

Male.—Carapace dusky over yellow, darker toward lateral margins. Legs and palpi somewhat paler than carapace. Labium and endites in colour like the carapace, the sternum darker. Abdomen blackish, without definite markings. Anterior portion of pars cephalica elevated but not bulging forward over base of clypeus as it does in *monticolens*, the lower part of clypeus slanting farther forward, the head in dorsal view not so convex anteriorly. The posterior row of eyes is slightly procurved instead of a little recurved as it is in *monticolens*, and the eyes are equidistant, though in the female the medians are obviously more widely separated. Anterior row of eyes conspicuously procurved instead of straight; median eyes much smaller than the laterals, nearer to each other than to the laterals, but much less widely separated from the latter than in *monticolens* in which the convexity carries the medians far forward. Palpus very similar to that of *monticolens*; the tibial apophysis is more strongly and uniformly curved than in the genotype, in the latter being comparatively straight above the curving basal portion. See Fig. 21, 4 and 5.

Female.—The form of the epigynum is shown in Fig. 21, 6.

Length of male 1.85 mm. Length of cephalothorax .7 mm.; width .58 mm.

Locality.—Utah: Mill Creek. A number of specimens secured by sifting leaves in September.

It will be noted that the less elevated and forwardly protruding head in this form is associated with considerable differences in eye relations from those in the genotype.

CATABRITHORAX gen. nov.

Much resembles *Gongylidiellum* in its broad cephalothorax with frons much wider than the area occupied by the eyes. Clypeus lower than length of median eye area, in the genotype much so. Anterior row of eyes straight or but very slightly curved, eyes close together, typically less than their radius apart, if any different the median eyes closer than to the laterals, median eyes smaller than the laterals; posterior row of eyes straight, the eyes nearly equidistant, the medians being a little nearer each other than to the laterals. Area of median eyes as wide as or a little wider than long. Anterior tarsi shorter than the metatarsi. In the male palpus the tibia has above at anterior end on mesal side a stout simple hook which curves ectad. The tarsal hook arising at distal end of bulb, where it is stout, runs to base of bulb and then bends back distad, this second part substraight, narrowing distad, unbranched, and free from the bulb. Embolus issuing at distal end of bulb from a tube-like fold. (Cf. Figs.)

Genotype.—*C. clypiellus*, sp. nov.

The structure of the male palpal organ is obviously different from that of *latebricola* Cambridge, type of *Gongylidiellum*, and the tarsi of the legs are shorter than the metatarsi. The close correspondence of the important features of the palpal organ in the two species here described, while differences in such

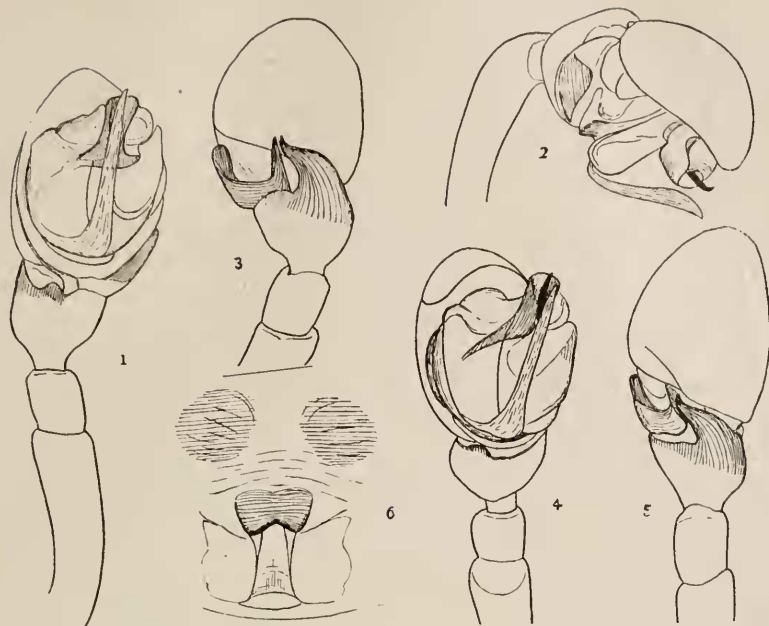


Fig. 22. 1. *Catabrithorax clypiellus*, sp. n., ventral view of left male palpus. x100. 2. Distoctal view of right male palpus. x100. 3. Dorsal view of left male palpus. x100. 4. *Anyphaena intermontana*, sp. n., ventral view of left male palpus. x100. 5. Distoctal view of right male palpus. x100. 6. *Anyphaena intermontana*, sp. n., epigynum. x44.

characters as height of clypeus, etc., are so marked, indicates the importance of the palpal organ in generic distinctions in this group.

Catabrithorax clypiellus, sp. nov.

Male.—Carapace light dusky yellow. Legs yellow. Abdomen light gray. Remarkable for the extremely low clypeus, the height of which is less than the diameter of the lateral eye and does not exceed that of the smaller medians. Anterior row of eyes straight or rather slightly recurved, eyes close together, separated by less than the radius of the median eyes; median eyes smaller than the laterals. Posterior row of eyes straight; eyes equal and equidistant, less than a diameter apart. Area of median eyes as wide as, or very slightly wider than, long, clearly wider behind than in front (ratio about 4:3). Upper margin of furrow of chelicera armed with four teeth, the lower margin with a series of five or six smaller teeth. Sternum broad, shield-shaped, produced between posterior coxæ, posteriorly truncate, strongly convex. Labium very short and broad, distally truncate, not narrowed. Cephalothorax unusually broad and low, the lateral margins widely convex, the anterior end broad, the eye region a little protruding over the clypeus. In the male palpus the tibia presents above a chitinous apophysis which distally curves first outward and then distad. Paracymbium and embolus as shown in Fig. 22, 1, 2 and 3.

Length 1.63 mm. Length of cephalothorax .66 mm.; width .58 mm. Length of tib.+pat. IV nearly equalling width of cephalothorax, the length of tib.+pat. I less than the width of cephalothorax.

Locality.—Utah: Logan Canyon. One male.

Catabrithorax ceuthus, sp. nov.

Male.—Cephalothorax and sternum dusky, almost black, the eye region solid black, the black protruding in a rounded spot on upper median part of clypeus. Legs fulvous, slightly smoky. Abdomen dark grey. Cephalothorax of moderate width; head elevated, sides slanting, eye region protruding above clypeus. Sternum rather narrow in comparison with that of *clypiellus*, conspicuously convex, strongly narrowing from the anterior and caudad, sides but moderately convex, narrowly produced between posterior coxæ. Labium anteriorly weakly convex, narrowing distad. Anterior row of eyes very slightly procurved; median eyes smaller than the laterals, very close together, being less than their radius apart, farther from the laterals. Area of median eyes much narrower in front than behind, fully as wide as long. Posterior row of eyes weakly procurved; eyes equal; median eyes about their radius apart, an equal or scarcely greater distance from the laterals. Clypeus equalling or slightly lower than the length of area of median eyes (ratio about 7:8). Tibia of male palpus with an uncate apophysis above, the hook turning outwards and then distad at tip as in *clypiellus*. Structure of palpal organ very similar to that of *clypiellus*, as shown in Fig. 22, 1, 2 and 3.

Length of cephalothorax .75 mm.; width .58 mm. Length of tib.+pat. I equal to width of cephalothorax or very slightly longer (.6 mm.). Length of tib.+pat. IV .65 mm.

Locality.—Utah: Bear Lake. One male.

Separable at once from the preceding species by its much higher clypeus, etc. It is a darker species.

CLUBIONIDÆ.

Anyphaena intermontana, sp. nov.

Female.—Cephalothorax and legs pale, of a weakly greenish tinge, the legs not at all annulate. Abdomen also pale, the dorsum or side with numerous longitudinal spots or streaks of dark, and the middorsal region behind with indistinct and more or less broken dark chevrons. Anterior row of eyes straight or slightly recurved; median eyes smaller than the laterals, about their radius apart, less than half as far from the laterals. Height of clypeus but little more than equalling the radius of an anterior median eye. Posterior row of eyes a little procurved; eyes subequal; median eyes a little more than their diameter apart, about their diameter from the laterals. Tibia I armed beneath with a subbasal and a submedian pair of spines, the first overlapping the bases of the second; a single spine on anterior face. Tibia II with a single subbasal spine and a pair of submedian spines, none at distal end.

Epigynum as shown in Fig. 22, 6.

Length 5.8 mm. Length of cephalothorax 2.6 mm. Length of tib.+pat. I 2.75 mm.

Locality.—Utah: Mill Creek.

In the form of epigynum suggesting *A. pacifica* (Banks), known from the State of Washington, though this is proportionately shorter and is broader anteriorly, with the median channel less elongate, etc. It is readily separable

by the characters of the eyes, the anterior row in *pacifica* being distinctly procurved instead of straight or slightly recurved, with the eyes obviously more widely separated and the medians clearly smaller relatively to the laterals, the clypeus higher, etc. In *pacifica* tibia I bears in front two spines instead of one, the ventral spines do not typically overlap, and tibia II is armed with a spine at the distal end.

A NOTE ON THE WINGLESS TIPULID *CHIONEA VALGA* HARRIS.

BY R. C. TREHERNE,

Entomological Branch, Dominion Department of Agriculture.

During March, 1920, Mr. H. J. Blurton, trapper, of Mara, B. C., brought into my office some specimens of insects taken from above snow line at the north end of the Okanagan Valley. One of these insects has turned out to be the wingless tipulid *Chionea valga* Harris, and it constitutes a new record from the West. The determination was made by Dr. Nathan Banks through Dr. J. McDunnough, of Ottawa, and my attention was drawn to the article on this genus that appears in *Psyche*, Vol. XXIV, p. 142, October, 1917, by Dr. Werner Marchand of the Department of Animal Pathology, the Rockefeller Institute for Medical Research, Princeton, New Jersey. Owing to the interest of this capture I requested Mr. Blurton to give me the leading notes of his observations for record and publication. These notes follow, arranged in manuscript form.

"I have noticed them for many years in the Hunter's Range of Mountains, east of Mara, B. C., and they have always attracted my attention by their peculiarities in regard to the altitude they live at in the mountains, their mode of travel, and the weather conditions they seem to prefer. These insects seem to live principally between 5,000 and 6,500 feet above sea level, and in a country where spruce and balsam trees grow, living principally in the large, open spaces near timber line, but very seldom where timber is plentiful. When travelling over the snow they always appear to be in a great hurry, and they move in nearly straight lines from one point to another, not travelling in an erratic manner at all, but as if they had some special destination in mind. I noticed when I approached one that it would crouch down when I am near, as if it could feel the vibrations in the snow made by the weight of my snowshoes falling on the snow, and would remain motionless until I had passed. This habit is not invariable, but it happens often enough to be noticeable, showing that this species is either sensitive to vibrations in the snow or to the sounds made by my movements.

It is very noticeable that this insect only selects cold, snowy weather to travel in, and it is very active on the surface of the snow during the months of January, February, March and April, even when the temperature is below zero. If the atmospheric temperature is warm enough to make the snow surface moist they apparently do not travel. I have noticed in April that if the sun in the morning shone brightly, causing a slight thaw, there would be a few *Chionea* visible, but if the weather changed in the afternoon and became colder with a flurry of snow that large numbers of *Chionea* both males and females, came hurrying from all directions. The adults seem very sensitive to warmth and will die in a few minutes if carried in a warm hand, although if placed on the